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U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NUMBER

November 28, 2000  
321.39341X00

U.S. APPLICATION NO. (known, see 37 CFR 1.5)

09/701338

TRANSMITTAL LETTER TO THE UNITED STATES  
DESIGNATED/ELECTED OFFICE (DO/EO/US)  
CONCERNING A FILING UNDER 35 U.S.C. 371

INTERNATIONAL APPLICATION NO.

PCT/EP00/01675

INTERNATIONAL FILING DATE

29 February 2000 (29.02.00)

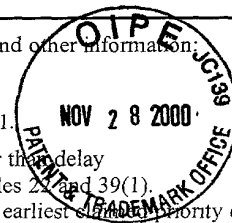
PRIORITY DATE CLAIMED

19 March 1999 (19.03.99)

TITLE OF INVENTION GRINDING MACHINE

APPLICANT(S) FOR DO/EO/US LUTZ, HELMUT

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:



1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☐ This express request to begin national examination procedures (35 U.S.C. 371(f)) at any time rather than delay examination until the expiration of the applicable time limit set in 35 U.S.C. 371(b) and PCT Articles 22 and 39(1).
4. ☐ A proper Demand for International Preliminary Examination was made by the 19th month from the earliest claim priority date.
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
  - a. ☐ is transmitted herewith (required only if not transmitted by the International Bureau).
  - b. ☒ has been transmitted by the International Bureau.
  - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☒ A translation of the International Application into English (35 U.S.C. 371(c)(2)).
7. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
  - a. ☐ are transmitted herewith (required only if not transmitted by the International Bureau).
  - b. ☐ have been transmitted by the International Bureau.
  - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
  - d. ☐ have not been made and will not be made.
8. ☐ A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☐ A translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

## Items 11. to 16. below concern document(s) or information included:

11. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☒ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A **FIRST** preliminary amendment.  
☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
14. ☐ A substitute specification.
15. ☒ A change of power of attorney and/or address letter.
16. ☒ Other items or information:

International Application as filed  
International Publication No. WO00/56501  
International Search Report  
FIGS. 1-4  
Credit Card Payment Form

The PTO did not receive the following  
listed item(s) Check

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PCT/EP00/01675

17. ☒ The following fees are submitted:**BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)) :**

Neither international preliminary examination fee (37 CFR 1.482)  
nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO  
and International Search Report not prepared by the EPO or JPO ..... \$970.00

International preliminary examination fee (37 CFR 1.482) not paid to  
USPTO but International Search Report prepared by the EPO or JPO ..... \$840.00

International preliminary examination fee (37 CFR 1.482) not paid to USPTO but  
international search fee (37 CFR 1.445(a)(2)) paid to USPTO ..... \$690.00

International preliminary examination fee paid to USPTO (37 CFR 1.482)  
but all claims did not satisfy provisions of PCT Article 33(1)-(4) ..... \$670.00

International preliminary examination fee paid to USPTO (37 CFR 1.482)  
and all claims satisfied provisions of PCT Article 33(1)-(4) ..... \$96.00

**ENTER APPROPRIATE BASIC FEE AMOUNT =**

CALCULATIONS PTO USE ONLY

\$ 860.00

Surcharge of \$130.00 for furnishing the oath or declaration later than ☐ 20 ☐ 30  
months from the earliest claimed priority date (37 CFR 1.492(e)).

\$ 0.00

CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE
Total claims	23 - 20 =	3	X \$18.00
Independent claims	1 - 3 =	0	X \$78.00
MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+ \$260.00

\$ 54.00

\$ 0.00

\$ 0.00

**TOTAL OF ABOVE CALCULATIONS =**

\$ 914.00

Reduction of 1/2 for filing by small entity, if applicable. A Small Entity Statement  
must also be filed (Note 37 CFR 1.9, 1.27, 1.28).

\$ 457.00

**SUBTOTAL =**

\$ 457.00

Processing fee of \$130.00 for furnishing the English translation later than ☐ 20 ☐ 30  
months from the earliest claimed priority date (37 CFR 1.492(f)).

\$ 0.00

**TOTAL NATIONAL FEE =**

\$ 457.00

Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be  
accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property

\$ 40.00

**TOTAL FEES ENCLOSED =**

\$ 497.00

Amount to be  
refunded:

charged:

a. ☒ A check in the amount of \$ 497.00 to cover the above fees is enclosed.b. ☐ Please charge my Deposit Account No. \_\_\_\_\_ in the amount of \$ \_\_\_\_\_ to cover the above fees.  
A duplicate copy of this sheet is enclosed.c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any  
overpayment to Deposit Account No. 01-2135. A duplicate copy of this sheet is enclosed.

**NOTE:** Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR  
1.137(a) or (b)) must be filed and granted to restore the application to pending status.

SEND ALL CORRESPONDENCE TO

Alan E. Schiavelli  
Antonelli, Terry, Stout & Kraus, LLP  
1300 North Seventeenth Street  
Suite 1800  
Arlington, VA 22209

SIGNATURE

Alan E. Schiavelli

NAME

32,087

REGISTRATION NUMBER

09/701338

525 Rec'd PCT/PTO 28 NOV 2000  
321.39341X00

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants: LUTZ

Serial No.:

Filed: November 28, 2000

For: Grinding Machine

Group:

Examiner:

PRELIMINARY AMENDMENT

Assistant Commissioner  
for Patents  
Washington, D.C. 20231

November 28, 2000

Sir:

Prior to examination on the merits of this application and prior to calculation  
of the filing fee, please amend the above-identified application as follows:

IN THE CLAIMS:

Claim 3, line 1, delete "or 2".

Claim 4, line 1, delete "one of the claims 1 to 3" and insert --claim 1--.

Claim 5, line 1, delete "one of the claims 1, 2 or 4" and insert --claim 1--.

Claim 6, line 1, delete "one of the claims 1 to 4" and insert --claim 4--.

Claim 7, line 1, delete "one of the claims 1 to 6" and insert --claim 4--.

Claim 8, line 1, delete "one of the claims 1 to 6" and insert --claim 4--.

Claim 9, line 1, delete "one of the claims 1 to 6" and insert --claim 4--.

Claim 10, line 1, delete "one of the claims 1 to 9" and insert --claim 1--.

Claim 12, line 1, delete "one of the preceding claims" and insert --claim 1--.

Claim 13, line 1, delete "one of the preceding claims" and insert --claim 1--.

Claim 14, line 1, delete "one of the preceding claims" and insert --claim 1--.

Claim 15, line 1, delete "one of the preceding claims" and insert --claim 1--.

Claim 16, line 1, delete "one of the claims 1 to 15" and insert --claim 1--.

Claim 17, line 1, delete "one of the claims 1 to 15" and insert --claim 1--.

Claim 19, line 1, delete "or 18".

Claim 20, line 1, delete "18 or 19" and insert --17--;

line 1, delete "geared";

line 2, delete "motor (14) or" and insert --drive--.

Claim 21, line 1, delete "one of the claims 17 to 20" and insert --claim 17--.

Claim 23, line 1, delete "one of the preceding claims" and insert --claim 1--.

#### REMARKS


The foregoing amendments are respectfully requested prior to examination on the merits of this application.

To the extent necessary, applicants petition for an extension of time under 37 CFR 1.136. Please charge any shortage in the fees due in connection with the filing of this paper, including extension of time fees, to the deposit account of Antonelli, Terry, Stout & Kraus, LLP, Deposit Account No. 01-2135 (Case: 321.39341X00), and

please credit any excess fees to such deposit account.

Respectfully submitted,

ANTONELLI, TERRY, STOUT & KRAUS, LLP



Alan E. Schiavelli  
Registration No. 32,087

AES/jla  
(703) 312-6600

Applicant or Patentee: Helmut Lutz Attorney's **EINGEGANGEN**  
Serial or Patent No: \_\_\_\_\_ Docket No: 28. Sep. 2000  
Filed or Issued: \_\_\_\_\_  
For: GRINDING MACHINE Ert.....

VERIFIED STATEMENT (DECLARATION CLAIMING SMALL ENTITY  
STATUS (37 CFR 1.9(f) and 1.27(b)) - INDEPENDENT INVENTOR

As a below named inventor, I hereby declare that I qualify as an independent inventor as defined in 37 CFR 1.9(c) for purposes of paying reduced fees under section 41(a) and (b) of Title 35, United States Code, to the Patent and Trademark Office with regard to the invention entitled \_\_\_\_\_ described in \_\_\_\_\_

☒ the specification filed herewith  
☐ application serial No. \_\_\_\_\_, filed \_\_\_\_\_  
☐ patent No. \_\_\_\_\_, issued \_\_\_\_\_

I have not assigned, granted, conveyed or licensed and am under no obligation under contract or law to assign, grant, convey or license, any rights in the invention to any person who could not be classified as an independent inventor under 37 CFR 1.9(c) if that person had made the invention, or to any concern which would not qualify as a small business concern under 37 CFR 1.9(d) or a nonprofit organization under 37 CFR 1.9(e).

Each person, concern or organization to which I have assigned, granted, conveyed, or licensed or am under an obligation under contract or law to assign, grant, convey, or license any rights in the invention is listed below:

☒ no such person, concern, or organization  
☐ persons, concerns or organizations listed below\*

\*NOTE: Separate verified statements are required from each named person, concern or organization having rights to the invention averring to their status as small entities. (37 CFR 1.27)

FULL NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT ORGANIZATION

FULL NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT ORGANIZATION

FULL NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
☐ INDIVIDUAL ☐ SMALL BUSINESS CONCERN ☐ NONPROFIT ORGANIZATION

I acknowledge the duty to file, in this application or patent, notification of any change in status resulting in loss of entitlement to small entity status prior to paying, or at the time of paying, the earliest of the issue fee or any maintenance fee due after the date on which status as a small entity is no longer appropriate. (37 CFR 1.28(b))

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application, any patent issuing thereon, or any patent to which this verified statement is directed.

Helmut Lutz  
NAME OF INVENTOR \_\_\_\_\_ NAME OF INVENTOR \_\_\_\_\_ NAME OF INVENTOR \_\_\_\_\_  
Signature of Inventor *H. Lutz* Signature of Inventor \_\_\_\_\_ Signature of Inventor \_\_\_\_\_  
5.10.00  
Date \_\_\_\_\_ Date \_\_\_\_\_ Date \_\_\_\_\_

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GRINDING MACHINE

The invention relates to a grinding machine for grinding grinding material by means of grinding bodies or wheels, having at least one grinding unit with two parts rotatable relative to one another.

For example centrifugal force sliding grinding machines are known, which comprise a two-part container with a shell-like, rotary container lower part forming a base and a stationary, cylindrical container upper part.

Such grinding machines are used for the surface working of grinding material, e.g. smaller parts and workpieces, which are moved together with the grinding bodies and optionally a liquid process medium in the container. If the lower part is rotated, the workpieces to be treated are moved outwards on the disk until they encounter the inner wall of the container where they are decelerated. Through the subsequently flowing workpieces a revolving workpiece movement occurs, which brings about an intense grinding or polishing.

A particular disadvantage of such centrifugal force sliding grinding machines is that the sealing of the annular clearance and the guidance of the tubes bounding the same gives rise to considerable problems, which can only be overcome with considerable effort and expenditure. The danger exists that the upper and lower parts, particularly the lower part, will be very strongly heated as a result of friction if parts of the grinding material and/or additionally added grinding bodies pass during operation into the gap between the container base and the rotating disk. This on the one hand leads not only to a relatively short grinding machine service life, but said machine must be frequently switched off during the working of grinding material to avoid overheating of both the grinding machine and also the grinding and/or polishing material.

The problem of the invention is to provide a simply constructed, inexpensive centrifugal force sliding grinding machine, which in the case of low wear susceptibility operates reliably and has a long service life.

According to the invention this problem is solved by a centrifugal force sliding grinding machine, particularly a polishing machine, of the aforementioned type having a stationary container for receiving grinding material and a rotary disk arranged above a container base for forming a finite gap with respect to the container wall.

The disk is also spaced from the container base. An extremely preferred construction results from the characterizing part of claim 12, which ensures that particles can pass beneath the disk which are much smaller than the

distance between the disk and the base.

In particular when the grinding machine according to the invention is constructed as a liquid grinding machine with a liquid process medium contained in the container, according to a preferred construction the entire disk is rigid. According to a further development in this case, the width or thickness of the gap is at least 1/10 mm and as a rule should not exceed 2 mm. It has surprisingly been found that in the case of a centrifugal force sliding grinding machine according to the invention with liquid in the container, the latter is expelled from the gap between the rotary disk and the base of the stationary container and no liquid is located there. This prevents grinding material, together with broken off fragments of larger grinding bodies or wheels passing into this area and consequently bringing about an impairment of the mounting of the disk or the disk driving spindle passing outwards through the base.

The prevention of the penetration of grinding bodies or fragments thereof or the forcing of the same out of the gap between the rotary disk and the stationary base can be achieved in the case of a dry-working centrifugal force grinding machine, i.e. a dry grinding machine, in that the disk has resilient material, at least on its underside.

As a result of the disk construction according to the invention, it is also ensured that when a grinding body or material particle penetrates the gap it is conveyed outwards again solely through the relative rotary movement between disk and container base, but no wear occurs as a result of the resilience of the disk or its underside and it is in particular ensured that the mounting of the disk is not impaired.

The invention makes it possible to construct very inexpensive, operationally reliable centrifugal force grinding machines, which also permit the use of very fine grinding and/or polishing bodies.

According to another preferred development, a driving spindle of the grinding disk is guided in liquid-tight manner through the container base.

The disk or the covering on its underside can e.g. comprise an elastomeric plastic, more particularly rubber, as well as felt, cotton fabric or a normally resilient floor covering, such as a PVC floor covering or the like.

According to a preferred development the disk has an upwardly raised circumferential edge or rim. over most of its surface area the disk has a



flat bottom. Only the edge is raised somewhat, so that there is a circumferential edge projecting over the disk bottom.

Even though, more particularly in the case of smaller disks up to a diameter of roughly 250 mm, a grinding seal can be provided between the disk edge and the surrounding cup part, as a result of the limited wear susceptibility of the centrifugal force sliding grinding machine according to the invention associated with the flexible disk, the gap can be larger than the minimum dimensions of the grinding or polishing body particles, but remains of the same order of magnitude as the same and is in particular not more than two or three times this, so that during the operation of the grinding machine said particles migrate beneath the disk and as a result of the relative movement of the flexible, rotary disk are released again with respect to the container base and can be conveyed radially outwards towards the container wall.

With very fine polishing materials, such as walnut granules, the gap should also be very small. With larger or coarser granules, the gap width  $b$  is preferably at least 2 mm and at the most preferably ranges between 3 and 4 mm. The gap width can in particular also be variable in order to adapt the gap to the granules used. It is possible to bring about a gap adjustability by using random known means, e.g. by packing shims or the like placed between the container base and the disk. The gap can also be adjustable e.g. by means of setscrews, by means of which a shaft passing through the container base can be vertically adjustable for mounting the flexible disk and fixed at a random height. Alternatively the container can be vertically adjustable with respect to the disk and fixable in a desired height.

A preferred development is characterized in that a closable or sealable outlet is provided beneath the disk in the container base.

According to another preferred development the casing is in one piece and in particular the casing and/or container is made from plastic. As a result the grinding machine according to the invention can be manufactured economically and therefore inexpensively. This is helped by the fact that the gear is positioned below the disk. In an alternative construction the drive is constructed as a geared motor with an integrated gear and then in particular the motor with its shaft is vertically oriented and a driven shaft passes out of the lower end of the motor and the top of the motor is essentially at the same level as the top of the container.

As a result of the grinding unit construction according to the invention, several grinding units can be present in a machine with limited

constructional expenditure, e.g. in order to permit the rational machining of heavy and/or shock-sensitive workpieces, which do not allow a joint machining of several workpieces in a single container. It is even possible to provide a very large number of units, e.g. more than 30. The disks of the individual containers can either be separately driven or the grinding machine has a common drive for all the units. In the latter case the disks of the units in each case arranged on one shaft are connected by means of coupling elements, such as meshing gears, V-belts, etc., to the central drive. The disks of individual containers are preferably separately uncouplable from the central drive, so that during the grinding of workpieces in some containers of the grinding machine, the other containers can e.g. be cleaned or emptied and then filled again with workpieces. A grinding machine according to the invention can in particular be used for the dry polishing of jewellery, dental parts, etc.

The invention is described in greater detail hereinafter relative to a preferred embodiment and with reference to the attached drawings, wherein show:

- Fig. 1 A container of a centrifugal force sliding grinding machine according to the invention.
- Fig. 2 Another construction of a grinding machine according to the invention.
- Fig. 3 Another construction of a grinding machine according to the invention in side view.
- Fig. 4 The essential parts of the machine according to fig. 3 in vertical section.

The grinding unit 1 of a centrifugal force sliding grinding machine in the form of a disk centrifugal force grinding machine shown in fig. 1 has a container 2 with a rotary disk 3. If the disk is rigid, working takes place with liquid in the container.

However, for both wet and dry working, the disk can also be of flexible material, e.g. rubber. The disk is driven by a shaft 3a. The shaft 3b traverses in preferably liquid-tight manner a container base 2a and is mounted in rotary manner thereon by means of bearings 4. Accompanied by the formation of a gap 5, the disk 3 is spaced from the container base 2a and in the case of dry working the gap width b is e.g. approximately 3 mm. The disk

3 and/or container 2 can be positioned in vertically adjustable manner, e.g. accompanied by a variation of the gap width b.

During the operation of the grinding machine the comparatively wide gap 5 makes it possible for small particles of the grinding material or in particular the grinding bodies or wheels to pass between the disk 3 and container base 2a and as a result of the rotary, flexible disk 3 said particles can again be conveyed in the direction of the container wall 2b, without there being any significant wear to the container base 2a or disk 3. As a result of the flexible disk 3 the production of frictional heat is essentially prevented, in that any grinding body particles passing beneath the disk 3 do not become crushed and instead are conveyed radially outwards.

A grinding machine according to the invention in particular has several, e.g. more than 30 units, which ensure a rational, separate working of relatively heavy (e.g. heavier than 10 g) and/or shock-sensitive workpieces. The diameter D of container 2 can e.g. be approximately 45 cm.

Fig. 2 shows a different construction of a grinding machine according to the invention, which has a simple construction and can therefore be manufactured at low cost and therefore can be offered for sale at a low price, so that it can also be used in the private sector for polishing private jewellery items.

The grinding machine 1 of fig. 2 has a one-piece casing 2', which is preferably made from plastic, so that in particular the container 2 is also made from plastic. The container 2 contains a disk 3 which, in this construction, has an upwardly inclined circumferential edge 3a, whose outer wall follows the container contour in this area, so that radially between the disk 3 or its circumferential edge 3a and container 2 or container wall 2b a finite gap 5 is formed, which has essentially the same size over its entire height. Through the raised disk edge 3a a dish-shaped receptacle for the grinding material is created.

The driving shaft 3b for the disk 3 passes through the container base 2b. The disk is coupled to a driven shaft 12a of a gear 12, which is centred by a centring ring 12b. In the represented embodiment the drive 11 is constructed as a geared motor 14, motor 13 and gear 12 being integrated together. Thus, not only the gear 12, but also the drive motor 13 is positioned below the container 2 in a foot 2c of the casing 2'. The geared motor 14 is fixed by means of screw connections 14a to the casing 2' and more precisely to the container base 2b.

Figs. 3 and 4 show another construction according to the invention, in which the inventive grinding machine also has a simple construction and is therefore inexpensive to manufacture.

In this case the casing 2' has a foot 2c, but which is not constructed in one piece with the container 2. In a manner as yet to be explained, the container 2 is instead fixed to the foot 2c. In this construction, as is in particular apparent from fig. 3, a motor 13 is positioned laterally of the container 2 and foot 2c in such a way that the driven shaft of the motor 13 (which is not shown) passes downwards out of the motor 13. The gear 12 is also positioned below the motor 13 and the drive 11 can also be constructed as a geared motor 14. The top of the motor 13 is substantially at the same level as the upper edge of the container 2. Between container 2 and motor 13 is provided a protective wall 16, which passes preferably in part arcuate, particularly semiarculate manner around the container 2. Alternatively the wall area facing the motor 13 can be raised compared with the wall area of the container 2 remote from the motor 13 in order to produce such a protective wall effect.

In the container base 2b below the disk 3 is also provided a sealable opening 15 making it possible to remove any grinding material which has passed under the disk 3.

Fig. 4 makes it clear that in the foot 2c of casing 2' is provided a U-shaped clip 17, whose legs are fitted to the casing foot 2c and whose web carries the container 2. A driving shaft 3b for the disk 3 passes through the base 2b and the web of the clip 17 into the gear 12, which extends from its parts immediately below the motor 13 to centrally under the container 2, through the provision of corresponding intermediate gears or other transmission designs, such as toothed belts, etc.

CLAIMS

1. Grinding machine for grinding grinding material by means of grinding bodies, with at least one grinding unit (1) having two parts rotatable relative to one another, characterized by a stationary container (2) for receiving grinding material and a rotary disk (3) placed above a container base (2a) for forming a finite gap (5) with respect to the container wall.
2. Grinding machine according to claim 1, characterized in that a driving shaft of the grinding disk (3) passes in liquid-tight manner through the base of the container (2).
3. Grinding machine according to claim 1 or 2, characterized in that the disk is rigid.
4. Grinding machine according to one of the claims 1 to 3, characterized in that at least on its underside the disk (3) has resilient material.
5. Grinding machine according to one of the claims 1, 2 or 4, characterized in that the disk (3) is made from resilient, particularly flexible material.
6. Grinding machine according to one of the claims 1 to 4, characterized in that the underside of a rigid carrier of the disk (3) is covered with resilient material.
7. Grinding machine according to one of the claims 1 to 6, characterized in that the resilient disk material is an elastomeric plastic.
8. Grinding machine according to one of the claims 1 to 6, characterized in that the disk material is rubber.
9. Grinding machine according to one of the claims 1 to 6, characterized in that the resilient material is felt, cotton fabric or resilient floor covering material.
10. Grinding machine according to one of the claims 1 to 9, characterized in that the width (b) of the gap (5) is at least 1/10 mm.
11. Grinding machine according to claim 10, characterized in that the gap width is up to 2 mm.
12. Grinding machine according to one of the preceding claims, characterized

in that the size (a) of the gap (5) is smaller than the spacing (b) of the disk (3) from the container base (2a).

13. Grinding machine according to one of the preceding claims, characterized in that the disk (3) has a raised circumferential edge (3a).

14. Grinding machine according to one of the preceding claims, characterized by a one-piece casing (2').

15. Device according to one of the preceding claims, characterized in that a casing (2') and/or the container (2) is made from plastic.

16. Device according to one of the claims 1 to 15, characterized in that a drive motor for the rotary disk (3) is placed beneath the latter.

17. Device according to one of the claims 1 to 15, characterized in that a drive (11) for the disk (3) has a gear (12) between the drive motor (13) and disk (3).

18. Device according to claim 17, characterized in that the gear (12) is positioned below the disk (3).

19. Device according to claim 17 or 18, characterized in that the drive (11) is constructed as a geared motor (14) with integrated gear (12).

20. Device according to claim 18 or 19, characterized in that the geared motor (14) or motor (13) is positioned below the container (2) in a foot (2c) of the casing (2').

21. Device according to one of the claims 17 to 20, characterized in that the drive motor (13) is positioned laterally of the container (2).

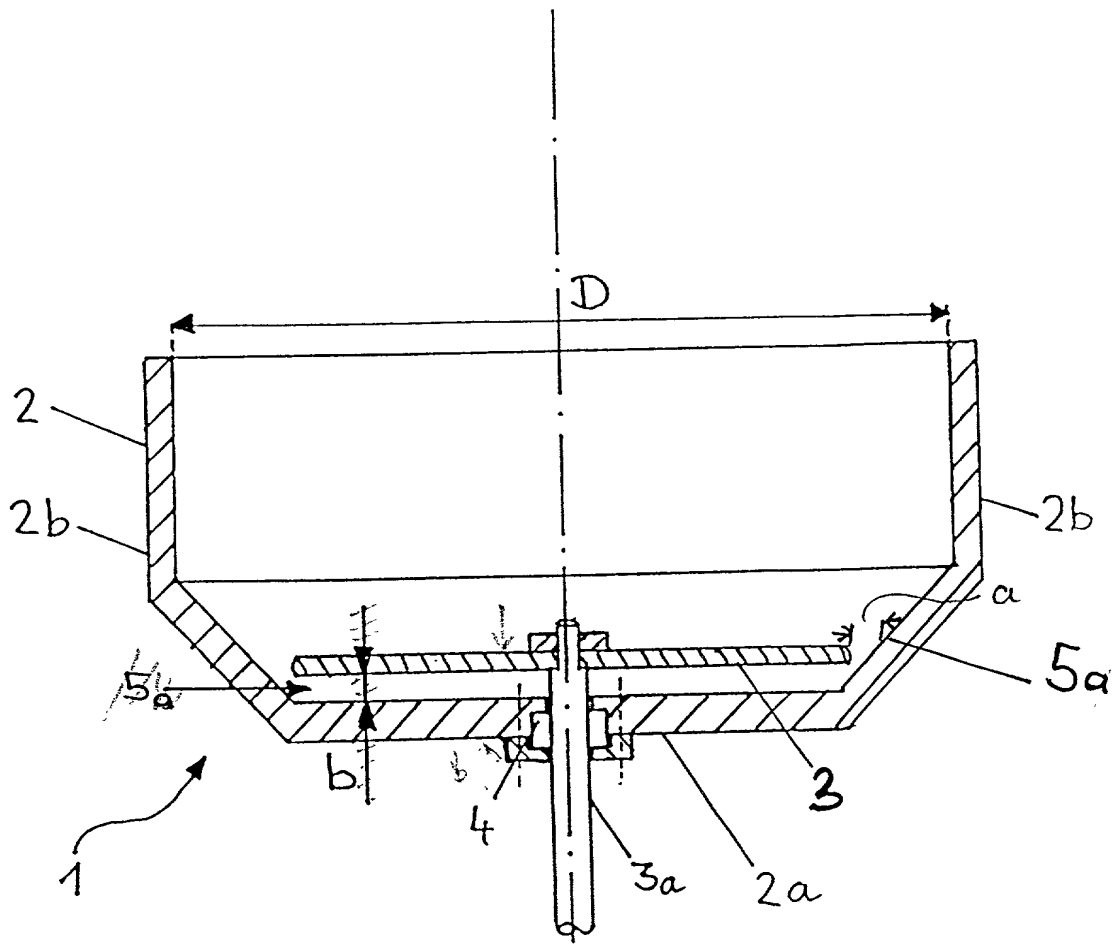
22. Device according to claim 21, characterized in that the top of the motor (13) is substantially at the same level as the top of the container (2).

23. Device according to one of the preceding claims, characterized in that a sealable outlet (15) is provided below the disk (3) in the base (2a) of the container (2).

ABSTRACT

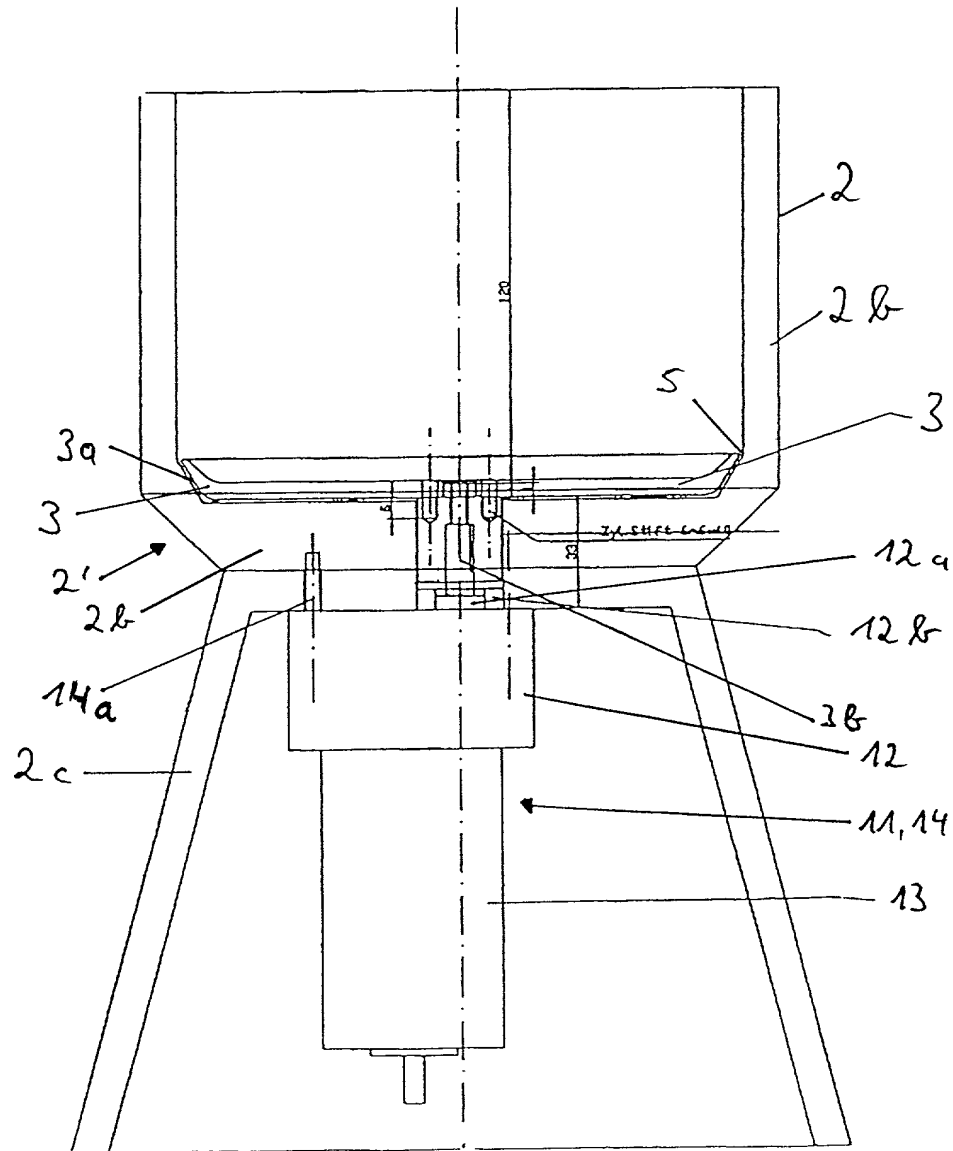
The invention provides a grinding machine for grinding grinding material by means of grinding bodies or wheels, having at least one grinding unit and two parts rotatable relative thereto, which has a container for receiving grinding material and a rotary disk placed above a container base, accompanied by the formation of a finite gap.

1/4

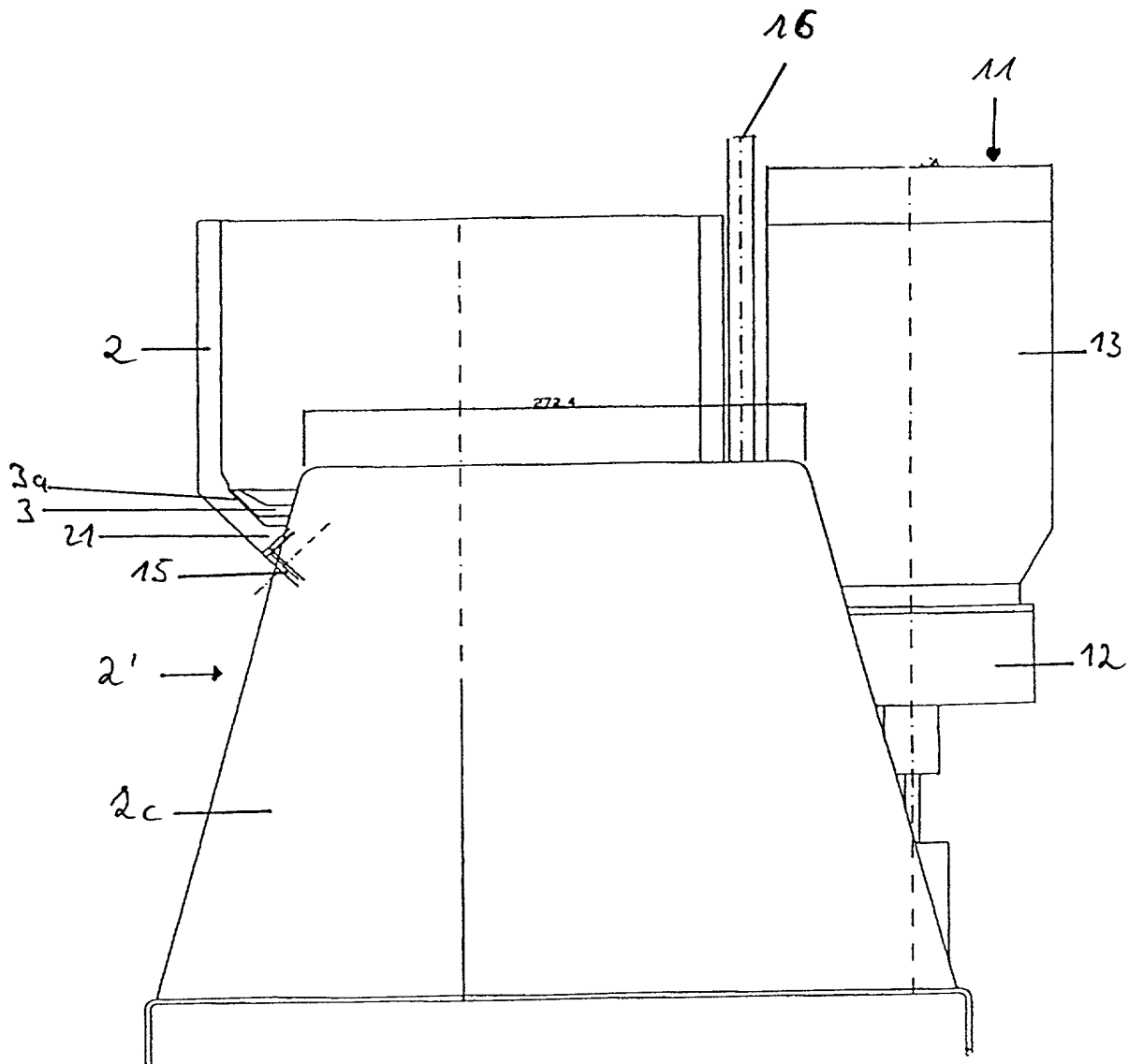


Figur 1

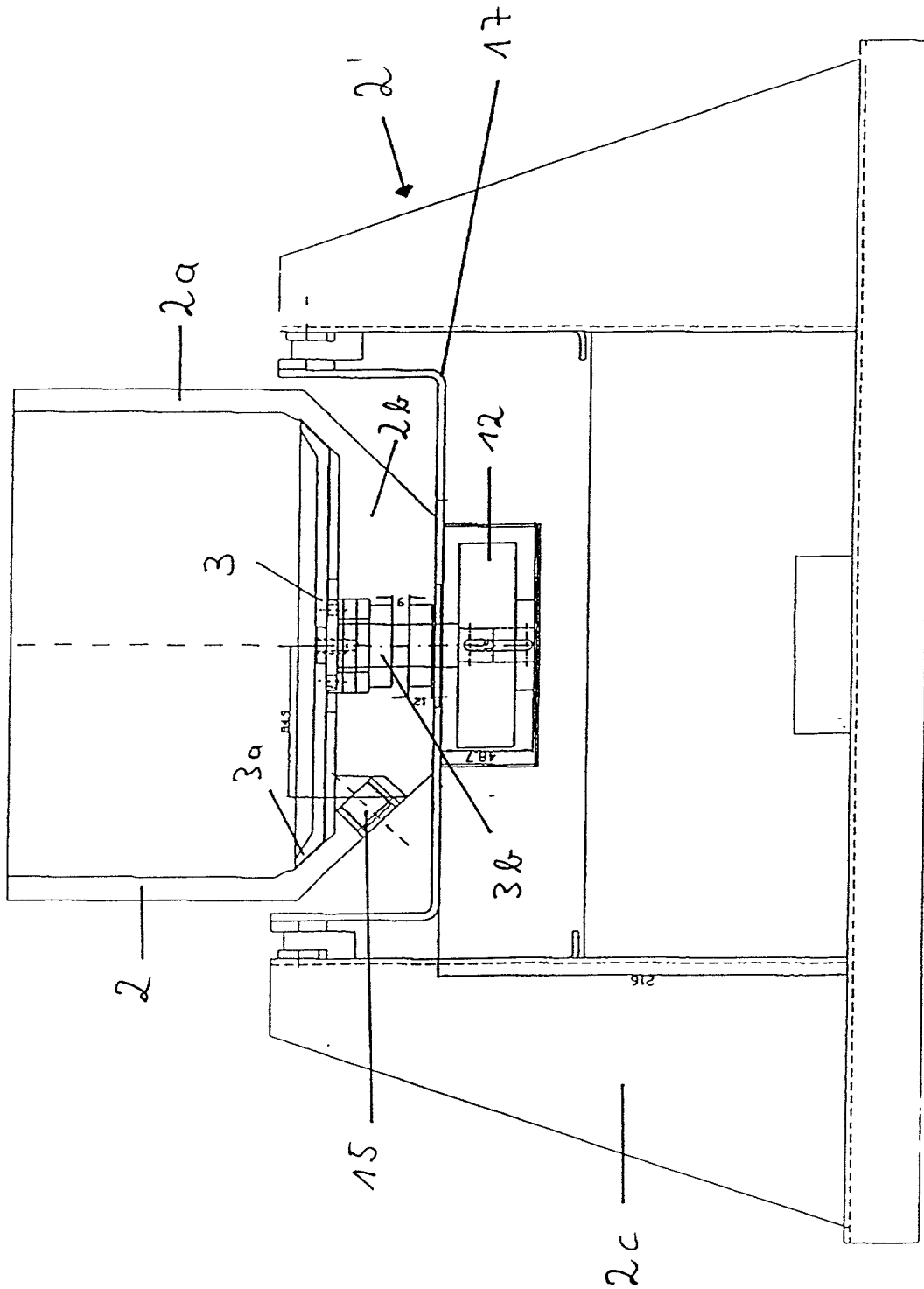




Figur 2



Figur 3



Figur 4

EINGEGANGEN

28. Sep. 2000

## DECLARATION AND POWER OF ATTORNEY FILED WITH U.S. DESIGNATED OFFICE UNDER 35 U.S.C. 371(c)(4)

As a below named inventor, I/we hereby declare that:

My/Our residence, post office address and citizenship are as stated below next to my/our name, I/we believe that I/we are the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

GRINDING MACHINE

the specification of which was filed as PCT International Application No. PCT/EP00/01675filed February 29, 2000 and was amended on \_\_\_\_\_ (if applicable)

I/We hereby state that I/we have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I/We acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

I/We hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

Prior Foreign Application(s)

Priority Claimed

<u>199 12 348.9</u>	<u>Germany</u>	<u>19. March 1999</u>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(Number)	(Country)	(Day/Month/Year Filed)	Yes	No
_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>
(Number)	(Country)	(Day/Month/Year Filed)	Yes	No
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(Number)	(Country)	(Day/Month/Year Filed)	Yes	No
_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>
(Number)	(Country)	(Day/Month/Year Filed)	Yes	No
_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>
(Number)	(Country)	(Day/Month/Year Filed)	Yes	No

I/We hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §112, I/we acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application:

_____	_____	_____
(Application Serial No.)	(Filing Date)	(Status: patented, pending, abandoned)
_____	_____	_____
(Application Serial No.)	(Filing Date)	(Status: patented, pending, abandoned)
_____	_____	_____
(Application Serial No.)	(Filing Date)	(Status: patented, pending, abandoned)
_____	_____	_____
(Application Serial No.)	(Filing Date)	(Status: patented, pending, abandoned)

I hereby appoint as principal attorneys; Donald R. Antonelli, Reg. No. 20,296; David T. Terry, Reg. No. 20,178; ~~Melvin Kraus, Reg. No. 22,466; Stanley A. Wal, Reg. No. 26,432; William I. Solomon, Reg. No. 28,565; Gregory E. Montone, Reg. No. 28,141; Ronald J. Shore, Reg. No. 28,577; Donald E. Stout, Reg. No. 26,422; Alan E. Schiavelli, Reg. No. 32,087; James N. Dresser, Reg. No. 22,973 and Carl I. Brundidge, Reg. No. 29,621~~ to prosecute and transact all business connected with this application and any related United States application and international applications. Please direct all communications to the following address:

Antonelli, Terry, Stout & Kraus  
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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further, that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United State Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

(Full Name)

(Signature)

Date Oct. 05, 2000 Inventor Helmut Lutz

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Date \_\_\_\_\_ Inventor \_\_\_\_\_

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Date \_\_\_\_\_ Inventor \_\_\_\_\_

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09/701338

Filing Date

November 28, 2000

First Named Inventor

Helmut LUTZ

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